

EPA/OPP MICROBIOLOGY LABORATORY  
ESC, Ft. Meade, MD

Standard Operating Procedure  
for  
Monitoring Temperature of Water Baths for Holding (Tempering) Media

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## TABLE OF CONTENTS

<u>Contents</u>	<u>Page Number</u>
1.0 SCOPE AND APPLICATION.....	2
2.0 DEFINITIONS.....	2
3.0 HEALTH AND SAFETY.....	2
4.0 CAUTIONS.....	2
5.0 INTERFERENCES.....	2
6.0 PERSONNEL QUALIFICATIONS.....	2
7.0 SPECIAL APPARATUS AND MATERIALS.....	2
8.0 INSTRUMENT OR METHOD CALIBRATION.....	3
9.0 SAMPLE HANDLING AND STORAGE.....	3
10.0 PROCEDURE AND ANALYSIS.....	3
11.0 DATA ANALYSIS/CALCULATIONS.....	3
12.0 DATA MANAGEMENT/RECORDS MANAGEMENT.....	3
13.0 QUALITY CONTROL.....	3
14.0 NONCONFORMANCE AND CORRECTIVE ACTION.....	3
15.0 REFERENCES.....	4
16.0 FORMS AND DATA SHEETS.....	4

### 1.0 SCOPE AND APPLICATION:

- 1.1 This protocol describes the quality control requirement for recording the temperatures of water baths used for holding (tempering) media (see ref. 15.2).

## 2.0 DEFINITIONS:

- 2.1 Tempering is the process of maintaining the temperature of the medium or reagents by using equipment with controlled temperature.
- 2.2 ASTM = American Society for Testing and Materials
- 2.3 NIST = National Institute of Standards and Technology

## 3.0 HEALTH AND SAFETY: Not applicable

## 4.0 CAUTIONS:

- 4.1 When hot autoclaved medium is kept in the water bath, it can take 30-60 minutes or longer for the water bath to equilibrate. Temperature should be taken after the equilibration period.

## 5.0 INTERFERENCES: None

## 6.0 PERSONNEL QUALIFICATIONS:

- 6.1 Personnel are required to be knowledgeable of the procedures in this SOP.

## 7.0 APPARATUS AND MATERIALS:

- 7.1 Precision Scientific Series 180: Water bath # 1, Serial Number 698091238.
- 7.2 Precision Scientific Series 183: Water bath # 2, Serial Number 9505426.
- 7.3 Precision Scientific Series 180: Water bath # 3, Serial Number 698101642.
- 7.3 Scientific Products (S/P): Water bath # 4, Serial Number 0678.

7.4 ASTM 1C Thermometers which measure from –20°C to 150°C in 1 degree increments.

8.0 INSTRUMENT OR METHOD CALIBRATION: Not applicable

9.0 SAMPLE HANDLING AND STORAGE: Not applicable

10.0 PROCEDURE AND ANALYSIS:

10.1 Set the temperature of the water bath to 45-50°C, as appropriate for the media that is being held in the water bath. Media must be equilibrated to the water bath temperature before use. Equilibration of 1 L of media takes approximately 30 minutes. Larger volumes will require additional time. Record the temperature of the water bath at the time the media is used (e.g., just prior to pouring in plates). The temperature recorded must reflect adjustments by the correction factor for the thermometer specified.

11.0 DATA ANALYSIS/CALCULATIONS: None

12.0 DATA MANAGEMENT/RECORDS MANAGEMENT:

12.1 Data will be recorded promptly, legibly and in indelible ink on the Water Bath Temperature Record Form (see 16.1). Completed forms are archived in notebooks kept in locked file cabinets in the file room D217. Only authorized personnel have access to the locked files. Archived data is subject to OPP's official retention schedule contained in SOP ADM-03, Records and Archives.

13.0 QUALITY CONTROL:

13.1 The OPP Microbiology laboratory conforms to 40 CFR Part 160, Good Laboratory Practices. Appropriate quality control measures are integrated into each SOP.

13.2 The ASTM 1C thermometers are calibrated annually against a NIST traceable thermometer (see SOP EQ-02, Thermometers).

14.0 NONCONFORMANCE AND CORRECTIVE ACTION: None

15.0 REFERENCES: None

16.0 FORMS AND DATA SHEETS:

16.1 Water Bath Temperature Record Form

# Water Bath Temperature Record

## OPP Microbiology Laboratory

[illegible]

\* Temperature recorded reflects adjustment by correction factor for the thermometer specified.